



JWST observing proposal

*Deadline JWST Cycle 2 GO Proposal January 27
new science program will be announced May 2023*

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JWST observing proposal, some cooking remarks

- November 2020, 1173 proposals submitted, 266 awarded.
 - It is not that bad !
 - Dual-anonymous peer review (much better than before)
 - About 25 % of the time for exoplanets (direct detection, transits)
 - Should have about 15% of the time for Europeans
 - Contrary to HST, you need to phase 2 material already in
-
- HST cycle 29, oversubription 7:1, 24 % EU proposals

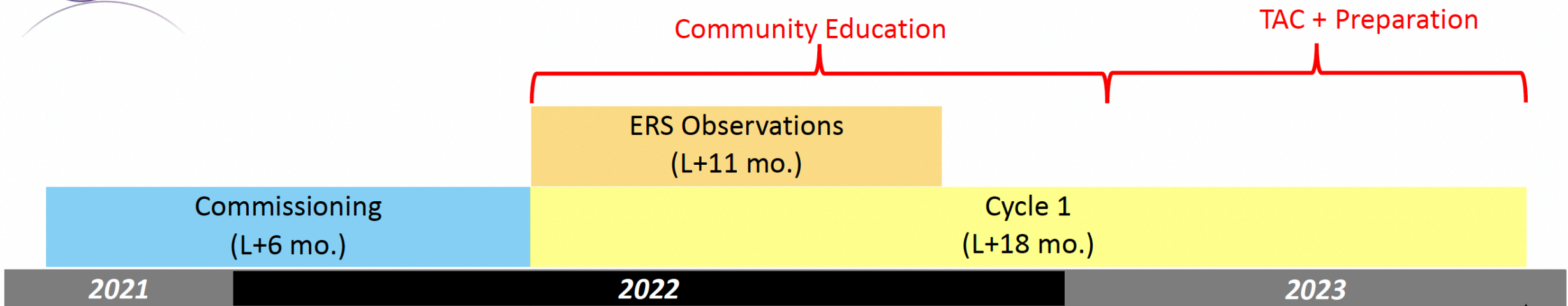


Less pressure on JWST !





Currently Published JWST Timeline



Launch date
12/25/2021

L+6 mo.
Start of Cycle
1 science
observations

L+9 mo.
GTO Cy2
Targets
Released

L+11 mo.
GO Cy2 Call
for proposals

L+13 mo.
GO Cy2
Deadline

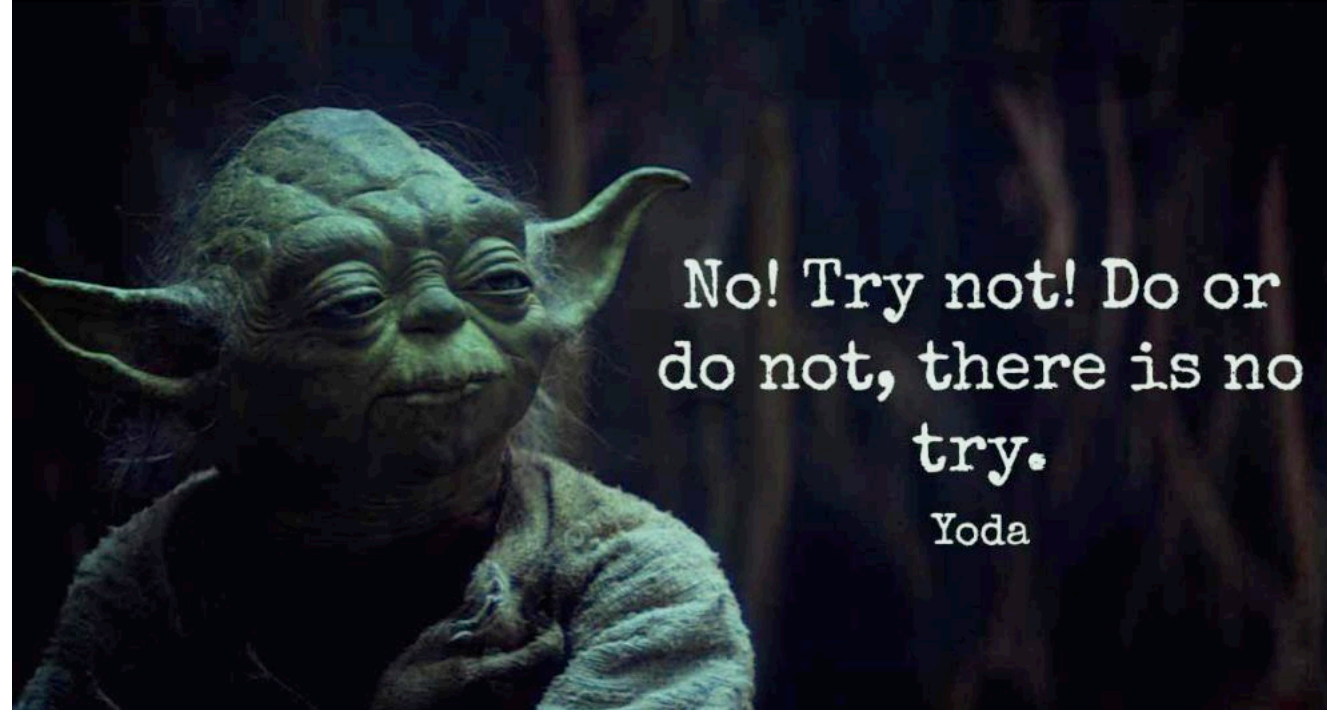
L+15.5 mo.
GO Cy2 TAC

L+18 mo.
Cycle 2
starts



Common sense

- If you decide to go, you do it well. No compromise.
- If you ask for JWST, it is because JWST is the only way to be able to do it
- Use ERS and previous observations as an example
- Choose an idea, target(s), which instrument, how to do it
- Ideally, you need people who know the instrument as collaborators
- Instruments are complicated
- Team work !



Writing a proposal

- Make sure that after few lines of your proposal, the reader (even if he/she is a cosmologist) understands what you want to do.
- Keep the text clear, not too compact, people will read your proposal quickly.
- If you are not native English, get a native for final polish of the text.
- Be fair, quote other people (some will be your reviewers)
- If there is a weak point, you're dead.



Groucho Marx : A five years old child would understand it.
Send someone to fetch me a five years old child.

In JWST context : A comologist would understand it.
Send someone to fetch me a cosmologist.

ERS observations of the Jovian System as a demonstration of JWST's capabilities for Solar System science

Scientific Category: Solar System

Scientific Keywords: Chemical Composition, Giant Planets, Planetary Atmospheres, Planetary Satellites, Space Weather

Alternate Category: Planets and Planet Formation

Instruments: NIRSPEC, MIRI, NIRISS, NIRCAM

Proprietary Period: 0 months

Allocation Information (in hours):

Science Time: 9.3

Charged Time: 30.9

Requested Time: 28.9

Time Request Explanation: Two instances of 3600-sec Direct Sched Overhead should be waived, because the time-constrained observations efficiently fall within groups where other observations fill in the gaps.

Abstract

Abstract

We have brought together a large and diverse community in the US and Europe to observe the jovian system, with the following scientific goals:

- characterize Jupiter's cloud layers, winds, composition, auroral activity, and temperature structure;
- produce maps of the atmosphere and surface of volcanically-active Io and icy satellite Ganymede to constrain their thermal and atmospheric structure, and search for plumes;
- characterize the ring structure, and its sources, sinks and evolution.

Our program will thus demonstrate the capabilities of JWST's instruments on one of the largest and brightest sources in the Solar System and on very faint targets next to it. We will also observe weak emission/absorption bands on strong continua, and with NIRIS/AMI we will maximize the Strehl ratio on unresolved features, such as Io's volcanoes.

We will deliver a number of science enabling products that will facilitate community science, including, e.g.: i) characterizing Jupiter's scattered light in the context of scientific observations, ii) resolve point sources with AMI in a crowded field (Io's volcanoes), and compare this to classical observations, iii) develop tools to mosaic/visualize spectral datacubes using MIRI and NIRSpec on Jupiter.

Finally, our program will also set a first temporal benchmark to study time variations in the jovian system and any interconnectivity (e.g., through its magnetic field) during JWST's lifetime.

ERS Targets

□ **Jupiter**

- NIRCam
- NIRSpec: IFU
- MIRI: MRS/IFU

□ **Jupiter's ring**

- NIRCam

□ **Io**

- NIRSpec: IFU
- NIRISS/AMI
- MIRI: MRS/IFU

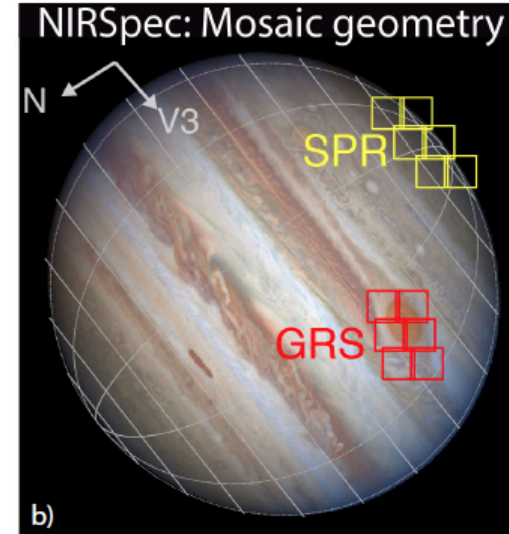
□ **Ganymede**

- NIRSpec: IFU
- MIRI: MRS/IFU

Strategy – 1 JUPITER

NIRSPec IFU:

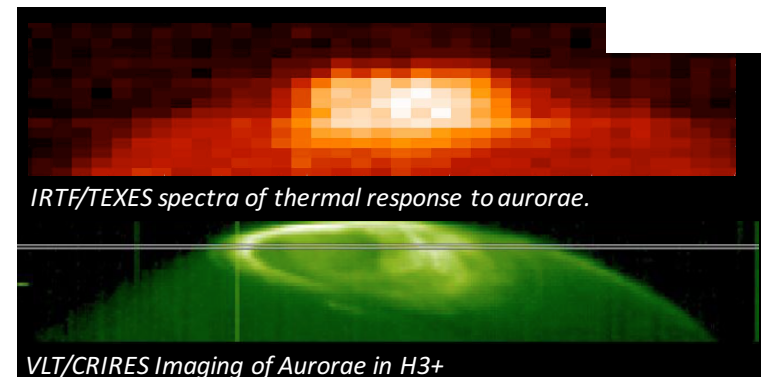
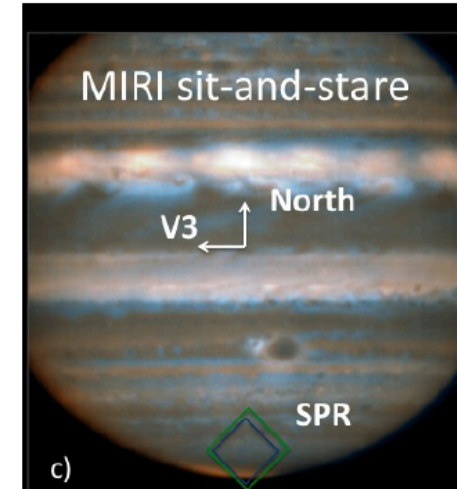
- Mosaics of SPR and GRS → maps of stratospheric species (e.g., H_3^+ hydrocarbons)
- Spectral Resolution $\sim 2,700$
 - G395H/F290LP
 - G235H/F170LP
- Integration
 - 2 10-sec NRSRAPID groups for SPR
 - 30/300 second for GRS 235H/395H



Strategy – 1 JUPITER

MIRI MRS IFU

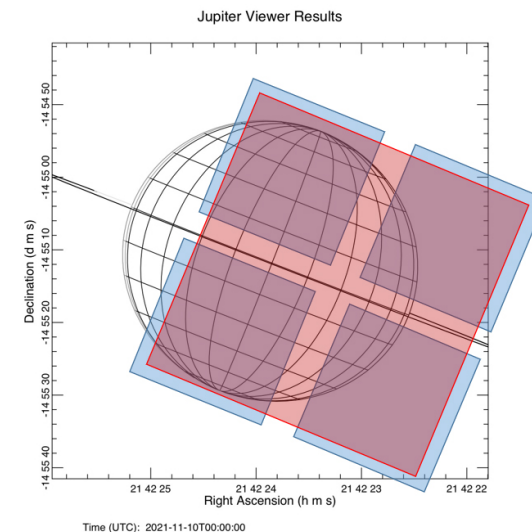
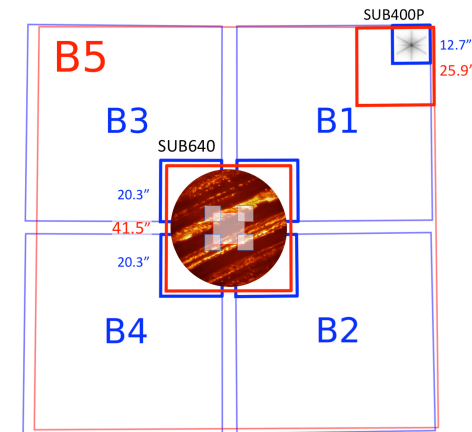
- IFU maps in Channels 1, 2 (4.9-11 μm)
Saturates in Channels 3, 4.
Sit and stare SPR
- build up spatial coverage by letting planet rotate with fixed pointing wrt target center
- 4 groups/integration,
two-point dither



Strategy – 1 JUPITER

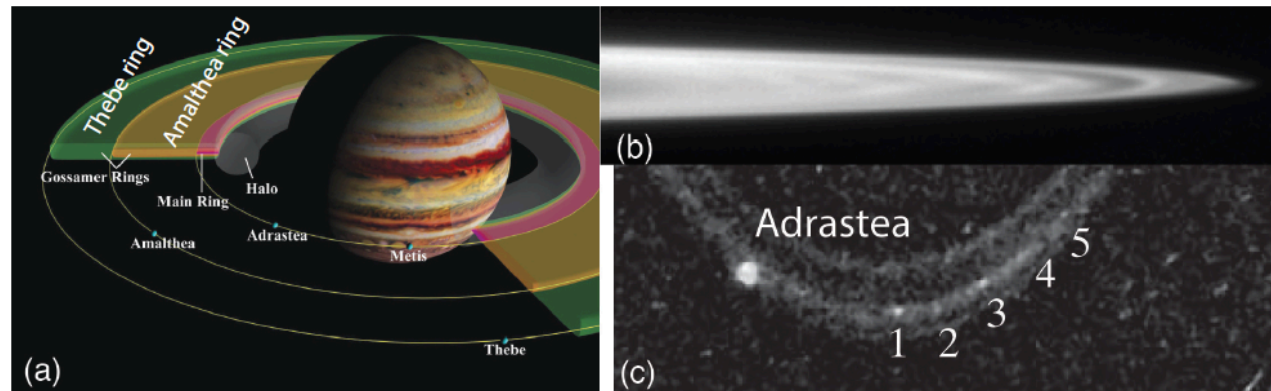
NIRCAM

- Increase in sensitivity required large changes in our original program: only narrow band filters at short wavelengths.
- Full-disk maps, sub640
 - ▣ F164N+F150W2 (upper clouds)
 - ▣ F360M (lower clouds, + H_3^+) visit 1
 - ▣ F405N (lower clouds) visit 2
- Two visits separated by 10 hrs



Science Goals -2. RINGS

- **Rings:** Characterize its structure, sources, sinks and evolution. We use NIRCam to:
 - Search for **moons and clumps**
 - **Satellite astrometry**
 - Study **ripple patterns** caused by comet/asteroid impacts (observations over two epochs)



Science Goals -3 IO

- **Io:** Characterize atmosphere (w. volcanic plumes) and surface (w. volcanic centers).
 - **High temperature eruptions:** NIRCcam 1-5 μm , in eclipse
 - **Multiple hot spot components:** NIRISS/AMI
 - **Atmospheric temperature and 3D SO_2** with MIRI/MRS
 - **SO emissions (LTE/non-LTE):** NIRSpec, in eclipse

Science Goals -4 **GANYMEDE**

- **Ganymede:** Characterize surface composition, atmosphere (exosphere) and aurora.
 - **Map H₂O and CO₂ in exosphere:** NIRSPec & MIRI
 - **Search for H₂O plumes:** NIRSPec & MIRI
 - **Compositional and thermal maps of surface**
 - **OI auroral emission** at 0.63 μm, in eclipse
 - **Search for other emissions**

JWST Astronomers Proposal Tool, the APT

WEBB
SPACE TELESCOPE

JWST
User Documentation

[Home](#) [About](#) [Acronyms](#) [Helpdesk](#)

Proposing Opportunities

- Opportunities and Policies
- > Cycle 2 GTO Call for Proposals
- Director's Discretionary (DD) Time Proposals
- > General Science Policies
- > Telescope Allocation Committee (TAC) Instructions
- > JWST Grants
- > Past Proposal Opportunities

Home / JWST Astronomers Proposal Tool Overview

JWST Astronomers Proposal Tool Overview

The Astronomer's Proposal Tool (APT) is a stand-alone GUI-based software package used by proposers to write, validate, and submit proposals for the James Webb Space Telescope.

⚠ The JWST Astronomer's Proposal Tool is under continuous development and improvement, and subject to updates. Minor differences between the tool appearance and documentation may occur. Please report any problems to the [JWST Help Desk](#).

On this page

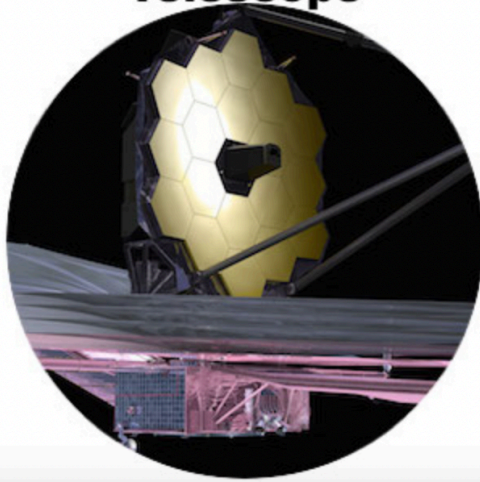
- [Basics of the APT GUI](#)
- [APT functionality](#)
 - [Proposal Information](#)
 - [Targets](#)
 - [Observations](#)

PandExo: The Exoplanet ETC

Tools to help the community with planning exoplanet observations.



**James Webb Space
Telescope**



Hubble Space Telescope



JWST Astronomers Proposal Tool, aka the APT

APT to write proposal :

<https://jwst-docs.stsci.edu/jwst-astronomers-proposal-tool-overview>

<https://www.youtube.com/watch?v=zd-rXTmFqjk>

JWST APT

- APT allows JWST users to perform a number of key functions in the proposal process:
- specify [general proposal information](#) (e.g., **Title**, **Abstract**, PI, Co-Is, etc.);
- specify proposed [targets](#);
- enter detailed [observation specifications](#) including instrument observing modes, [mosaics](#), and [special requirements](#);
- [visualize the field of view](#) on the sky for planned JWST observations;
- check the schedulability of observations using the [APT visit planner](#);
- [calculate the total science time and total time allocation request](#) including [overheads](#);
- check against existing and planned JWST observations for possible [duplications](#);
- [submit](#) JWST proposals (including archival/theory proposals) to STScI for review.

JWST Exposure Time Calculator



Rechercher



<https://jwst.etc.stsci.edu/>



Accueil



Explorer



Shorts



bonnetements

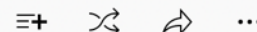


bibliothèque



Exposure Time Calculator Video Help

9 vidéos · 2 424 vues · Dernière modification le 15 oct. 2019



Videos developed to help proposers use ETC.

For the latest information on JWST tools and functionality, please consult JDOx:
<https://jwst-docs.stsci.edu/>.



JWST Observer

S'ABONNER

1



ETC Home Page Overview

JWST Observer

2



ETC Available Workbooks

JWST Observer

3



ETC General Overview

JWST Observer

4



ETC Scenes and Sources

JWST Observer

5



Uploading Spectra to the ETC

JWST Observer

6



ETC Batch Expansions

JWST Observer

7



Backgrounds in the ETC

JWST Observer

<https://jwst-docs.stsci.edu/jwst-exposure-time-calculator-overview>